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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,082	03/11/2004	Robert Mergen	MERGEN ET AL 3	5645

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1077 Northern Boulevard  
Roslyn, NY 11576

EXAMINER
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MORILLO, JANEL COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/798,082

Applicant(s)

MERGEN ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Instant claim 1 mentions "up to 4.5%, by weight, of a soft phase and hard particles" (up to 4.5% total soft phase + hard particles combined). Previously, said claim was drawn to up to 4.5% of a soft phase. The original specification does not provide support for up to 4.5% total soft phase + hard particles combined. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (US 6,638,375).

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Fujita teaches an aluminum bearing alloy comprising: 3-40% Sn, 0.5-7% Si, 0.05-2% Fe (see Fujita at cl. 1), and optionally 0.01-2% Zr (cl. 10) and 0.1-5% Cu, Mg, or Zn, which overlaps the presently claimed alloying ranges of instant claims 1-5 and 16-18.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Therefore it is held that Desaki has created a prima facie case of obviousness of the presently claimed invention.

5. Claims 7-9, 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (US 6,638,375) in view of Desaki (US 6,706,126).

Fujita teaches said alloy is used for a bearing alloy, but does not teach the specific structure of said bearing. However, Desaki, who is also drawn to Al-Sn bearing structures (in particular, sliding or 'plain' bearings, see Desaki at column 1 lines 7-8), teaches that said bearing alloy can be part of a two or three layer bearing structure (both comprising a backing metal, and wherein aluminum alloy is the lining, column 4 lines 35-46), and wherein a coating of resin such as polyimide (PI) or polyamid imide are used with a solid lubricant MoS<sub>2</sub> to prevent seizure (column 4 lines 48-54). Said coating is applied to the lining, and acts as the running layer. The "backing material" and "lining" taught by Desaki are analogous to the instant "protective shell" and "base layer", respectively. Said resin of PI meets the instant limitations of a layer of plastic (cl. 11), as well as "lubricating varnish" (c. 14). It would have been obvious to one of ordinary skill in the art to use the alloy taught by Fujita in the bearing structure taught by Desaki because

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Fujita teaches said alloy has good anti-seizure property without reduction in fatigue resistance (column 2 lines 29-32).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita and Desaki et al, as applied to claims above, in view of “ASM Handbook: Vol. 18 Friction, Lubrication, and Wear Technology” (hereinafter “ASM Vol. 18” ) pp 741-753.

Neither Fujita nor Desaki teach the application of a layer of Pb, Sn, Bi, In, or Cu to said base layer Al-Sn-Zr alloy. However, “ASM Vol. 18” teaches that a thin layer of Sn or Pb can be applied to bearing material systems (see Tables 3 and 4 on p. 747-748), and such bearings “have high tolerances for boundary and thin-film lubrication conditions, and thus can be used under higher loads than can any of the bimetal systems”, p 748, 1<sup>st</sup> column. It would have been obvious to one of ordinary skill in the art to apply a thin surface layer of Sn or Pb to the base layer taught by Fujita and Desaki, because “ASM Vol. 18” teaches that said layer allows bearing to be used under higher loads.

7. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (US 6,638,375), as applied to claims above, further in view of GB2358406 (GB’406).

Fujita teaches an Al-Sn-Si-Fe bearing as stated above. Fujita does not mention Sc in said alloy composition. However, GB’406 teaches that 0.015-2.5% Sc can be adding to Al-Sn alloys intended for plain bearings, wherein said Sc addition improves the mechanical properties of the bearing alloy, improves adherence strength between the individual layers, reduces susceptibility to hot tearing, and improves weldability (page 10). It would have been obvious to one of ordinary skill in the art to add Sc to the Al-Sn bearing alloy taught by Fujita because GB’406

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teaches said addition improves strength, and improves performance as a bearing layer (see GB'406 at p. 10).

***Response to Amendment/Arguments***

8. In the response filed on November 3, 2004, applicant amended claims 1, 4-8, 13, added new claims 15-19, and submitted various arguments traversing the rejections of record. The examiner agrees that the instant amendment has overcome the rejection in view of Desaki. However, the instant claims are rejected in view of Fujita as stated above.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER

  
JCM  
January 11, 2005